

REMARKS

Claims 1-20 are pending in the case, of which claims 1, 12 and 17 are independent claims and have been amended. Each of these claims have been amended to state that the displacement of the plunger rod from a fiducial reference position is determined at any time during dispensing. Support for these amendments may be found, for example, on page 5, line 23-27.

Claim Rejections

Claims 1-20 stand rejected under 35 U.S.C. §103(a) as obvious in view of U.S. Patent No. 6,645,177 (“Shearn”). In view of the above amendments, Applicants respectfully traverse all of these rejections because Shearn does not teach or suggest a device, apparatus, or method that may determine a displacement of a plunger rod from a fiducial reference position at any time during dispensing.

Claims 1-10

Claim 1 is directed to a displacement sensor for a substance dispensing device that includes, *inter alia*, a processor for determining a displacement of a plunger rod relative to a fiducial reference position at any time during dispensing.

The Office Action asserts that the plurality of markers 58 in Shearn may be used to determine position. Shearn itself contradicts this assertion. Indeed, at col. 8, lines 22-32, Shearn states that the markers are used to insure that the plunger is moving at the correct – not the position of the plunger. The only locations determined in Shearn are the NEOI and EOI locations. The two locations do not, however, allow for, or suggest, determining a displacement of a plunger rod relative to a fiducial reference position at any time during dispensing as recited in claim 1. As such, claim 1 is patentable over Shearn.

Claims 2-10 depend from claim 1 and, therefore, are patentable for at least the same reasons.

Claims 12-16

Claim 12 is directed to a dispensing apparatus that includes, *inter alia*, a processor for determining a displacement of a plunger rod relative to a fiducial reference position at any time during dispensing. As discussed above, Shearn does not teach or suggest an apparatus that

includes a processor for determining a displacement of a plunger rod relative to a fiducial reference position at any time during dispensing. Claim 12, therefore, is patentable over Shearn.

Claims 13-16 depend from claim 12 and, therefore, are patentable for at least the same reason.

Claims 17-20

Claim 17 is directed to a method for measuring a rate of dispensing a substance by means of dispenser having a piston that includes, *inter alia*, a step of determining a of a plunger rod relative to a fiducial reference position at any time during dispensing. As discusses above, Shearn does not teach or suggest a method that includes a step of determining a displacement of a plunger rod relative to a fiducial reference position. Claim 17, therefore, is patentable over Shearn.

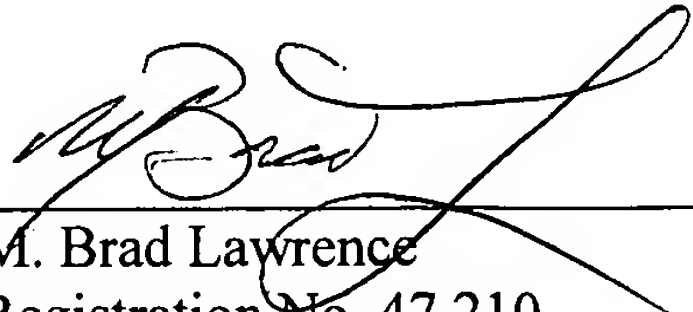
Claims 18-20 depend from claim 17 and, therefore, are patentable for at least the same reasons.

Conclusion

Applicants respectfully request that the examiner reconsider this application in view of all of the art. Applicants submit that the present application is in condition for allowance and early notice to that effect is respectfully solicited.

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Respectfully submitted,


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